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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/261,621	03/03/1999	URESH K VAHALIA		7971

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EXAMINER
NGUYEN, DUSTIN

ART UNIT	PAPER NUMBER
2156	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/261,621	VAHALIA ET AL.	
	Examiner	Art Unit	
	Dustin Nguyen	2156	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,3,5,7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Claims 1 – 49 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 8, 11, 14-18, 27, 30, 33-34, 42, 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennet et al. (US Patent No 5852747) in view of Tzelnic et al. (US Patent No 5944789).

4. As per claim 1, Bennett discloses a method of operating a file server in a data network, said method comprising:

(a) the file server receiving a request for metadata (e.g. col 1, line 23-27) about a file to be accessed (i.e. token manager of file server) (e.g. Abstract, line 11-12), the request being received from a data processing device (i.e. client) in the data network (e.g. col 2, line 58-61); and

(b) in response to the request for metadata, the file server granting to the data processing device a lock (e.g. col 2, line 14-16) on at least a portion of the file (i.e. first data block) (e.g. Abstract, line 12-14), and returning to the data processing device metadata of the file (e.g. col 4, line 25-27).

Bennett does not disclose the metadata of the file including information specifying data storage locations in the file server for storing data of the file.

Tzelnic discloses the above limitation (e.g. col 15, line 53-54).

At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic because specified data storage location makes communication faster and more efficient for client to access data inside the data storage.

5. As per claim 2, Bennet does not disclose the limitation of the claim. Tzelnic discloses the file server includes a data storage device including

the data storage locations, and a data mover computer (e.g. col 2; line 1-5) for managing locks on files having data stored in said data storage device (e.g. col 2, line 7-13),

wherein the data storage device stores metadata of a plurality of files having file data stored in the data storage device (e.g. col 2, line 12-21),

the data mover computer is coupled to the data storage device for transfer of the metadata between the data storage device and the data mover computer (e.g. claim 1),

the data mover computer has a random access memory (e.g. col 4, line 59-61); and

the method includes the data mover computer maintaining a metadata cache in the random access memory, and the method includes the data mover computer accessing the

metadata cache for obtaining the metadata that is returned to the data processing device (e.g. claim 1).

At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic because the local caching of shared file directory information substantially reduces loading on the cached disk array (e.g. Tzelnic, col 2, line 19-21).

6. As per claim 3, Bennett discloses the method as claimed in claim 1, wherein a plurality of data processing devices in the data network share read-write access to the file (e.g. col 1, line 20-23), and the file server grants respective read locks and write locks to the data processing devices in the data network (e.g. col 5, line 45-55).

7. As per claim 4, Bennett discloses the data processing device modifies (i.e. update) the metadata from the file server in accordance with the data storage locations in the file server to which the data is written, and sends the modified metadata to the file server (e.g. col 4, line 30-38). Bennett does not disclose the data processing device writes data to the data storage locations in the file server. Tzelnic discloses this limitation (e.g. col 15, line 44-48). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic because it allows data to be updated regularly, which keeps the integrity of the file and allows other clients to retrieve most recent information.

8. As per claim 5, Bennett does not disclose the data processing device sends the modified metadata to the file server after the data processing device writes the data to the data storage of

the file server. Tzelnic discloses this limitation (e.g. col 16, line 55-59). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic because it speeds up the communication process since it is a faster write protocol inside a data network communication.

9. As per claim 8, it is rejected for similar reasons as stated above. Furthermore, Bennett discloses a method of operating a file server and a client in a data network, said method comprising:

(c) the client receiving from the file server the metadata of the file (i.e. returning metadata) (e.g. col 4, line 24-27), using the metadata of the file to produce at least one data access command for accessing the data storage locations in the file server (e.g. col 1, line 49-51), and sending the data access command to the file server to access the data storage locations in the file server (e.g. col 4, line 50-55); and

(d) the file server responding to the data access command by accessing the data storage locations in the file server (e.g. col 5, line 5-26).

10. As per claim 11, it is rejected for similar reasons as stated above.

11. As per claim 14, Bennett teaches the method includes dynamically linking application programs of the client with input-output related operating system routines of the client, the input-output related operating system routines intercepting file access calls from client application processes to send file access requests to the file server to obtain from the file server locks upon at

least a portion of each of the files, to obtain metadata for producing data access commands for accessing data storage in the file server, to produce the data access commands from the metadata, and to send the data access commands to the file server in order to access the data storage of the file server (i.e. Operating System) (e.g. Figure 2, item 44).

12. As per claims 15 and 16, they are rejected for similar reasons as stated above. Furthermore, Bennett discloses the write command (i.e. command processor) (e.g. col 4, line 7-13 and 24-28).

13. As per claim 17, Bennett does not disclose the limitation of the claim. Tzelnic discloses the client performs asynchronous write operations upon the data storage locations of the file server, and wherein the client sends the modified metadata to the file server in response to a commit request from an application process of the client (e.g. col 15, line 57-67). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic because the asynchronous write protocol is much faster than the synchronous write protocol (e.g. Tzelnic, col 16, line 1-2).

14. As per claim 18, Bennett does not disclose the limitation of the claim. Tzelnic discloses the client performs asynchronous write operations upon the data storage locations of the file server, and wherein the client sends the modified metadata to the file server when the client requests the file server to close the file (e.g. col 17, line 18-25). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic

since closed the file will release the lock on the file allowing other processes or clients to access the file and help to keep data in defragmented format.

15. As per claims 27, 30, 33-34, 42, 44-48, they are rejected for similar reasons as stated above.

16. Claims 6, 7, 19, 20, and 35, 49, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennet et al. (US Patent No 5852747), in view of Tzelnic et al. (US Patent No 5944789) and further in view of He (US Patent No 5734898).

17. As per claim 6, Bennett and Tzelnic do not disclose the limitation of the claim. He discloses

the data processing device has a cache memory for caching the metadata of the file including a version identifier associated with the metadata of the file (e.g. Figure 4, item 43, 45, 47), and

wherein the data processing device includes the version identifier in the request for access to the file, the file server compares the version identifier from the data processing device to a version identifier of a most recent version of the metadata of the file, and the file server returns the most recent version of the metadata of the file to the data processing device when the comparison of the version identifier from the data processing device to the version identifier of the most recent version of the metadata of the file indicates that the metadata of the file cached in

the cache memory of the data processing device is not the most recent metadata of the file (e.g. col 3, line 41-54).

At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic since using the most recent version of data will keep the integrity and consistency of data in the data network.

18. As per claim 7, Bennett and Tzelnic do not disclose the claim limitation. He discloses the version identifier is a number that is incremented when the metadata of the file is modified (e.g. col 9, line 43-46). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic since using the most recent version of data will keep the integrity and consistency of data in the data network.

19. As per claims 19, 20 and 35, 49, they are rejected for similar reasons as stated above.

20. Claims 12, 13, 31, 32, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennet et al. (US Patent No 5852747), in view of Tzelnic et al. (US Patent No 5944789), and further in view of Henson et al. (US Patent No 5226159).

21. As per claim 12, Bennett and Tzelnic do not disclose the limitation of the claim. Henson discloses the method as claimed in claim 8, wherein the lock on at least a portion of the file granted by the file server to the client is not granted to any particular application process of the

client (e.g. col 3, line 24-30), and wherein the client has a lock manager that grants a local file lock to a particular application process that accesses the file (e.g. col 6, line 8-13). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett and Tzelnic because it would provide for synchronization and coordination of the use of a file by multiple clients.

22. As per claim 13, it is rejected for similar reasons as stated above. Furthermore, Henson discloses the lock on at least a portion of the file (i.e. various kind of locks) (e.g. col 2, line 55-59).

23. As per claims 31, 32 and 43, they are rejected for similar reasons as stated above.

24. Claims 9, 10, 21-24, 28, 29, 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennet et al. (US Patent No 5852747) in view of Tzelnic et al. (US Patent No 5944789), and further in view of Pittenger et al. (US Patent No 5541925).

25. As per claim 9, it is rejected for similar reasons as stated above. Furthermore, Bennett and Tzelnic do not disclose the client sends the data access command to the data storage device over a data transmission path that bypass the data mover computer. Pittenger discloses the above limitation (i.e. bypass PTN) (e.g. col 1, line 28-30 and col 3, line 7-15). At the time the invention was made, it would have been obvious to a person skill in the art to combine Bennett

and Tzelnic because it is a faster and more efficient way for client to access data inside the data storage.

26. As per claims 10, it is rejected for similar reasons as stated above.

27. As per claim 21, it is rejected for similar reasons as stated above. Furthermore, Tzelnic discloses the elements and functions above can be performed in computer software program, and the data mover computer having at least one network port (i.e. interfaces) for exchange of control information and metadata of files in the file system with data processing devices in the data network (e.g. Figure 2, item 21).

28. As per claims 22-24, 28, 29, 36-39, they are rejected for similar reasons as stated above.

29. Claims 25, 26, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennet et al. (US Patent No 5852747) in view of Tzelnic et al. (US Patent No 5944789), He (US Patent No 5734898), and further in view of Pittenger et al. (US Patent No 5541925).

30. As per claims 25, 26, 40 and 41, they are rejected for similar reasons as stated above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Nguyen whose telephone number is (703) 305-5321. The examiner can normally be reached on Monday – Friday (8:00 – 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alvin Oberley can be reached on (703) 305-9716.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directly to the receptionist whose telephone number is (703) 305-3900.

Dustin Nguyen
DN
09/09/02

JOHN A. FOLLANSBEE
PRIMARY EXAMINER